AMENDMENTS TO THE CLAIMS

Claims 1, 2, 6, 7, 10, 12, 13, 14, 22, 24, 25, 27 and 28 are currently being amended and claims 5, 8, 9, 11, 20, 21 and 23 are being canceled. All pending claims are reproduced below, including those that remain unchanged.

1. (Currently Amended) A system comprising:

a digital amplifier controller;

an amplifier output stage coupled to the controller, and configured to receive audio signals from the controller;

~~one or more~~ a plurality of sensors coupled to the output stage; ~~and~~

~~one or more low-pass filters coupled to the one or more sensors and configured to receive sensor signals from the one or more sensors;~~

~~wherein the low-pass filters are configured to filter the sensor signals and to provide the filtered sensor signals to the controller;~~

a plurality of comparators each configured to compare an output from one of the sensors to a corresponding comparator threshold and produce a binary protection signal indicative of whether the comparator threshold is exceeded; and

a plurality of accumulators each configured to receive a said binary protection signal from a corresponding one of the comparators, increment a corresponding count when the received binary protection signal is a first state, decrement the corresponding count when the received binary protection signal is a second state, and output a signal indicative of a potential failure condition when the corresponding count exceeds a corresponding accumulator threshold;

wherein the amplifier output stage includes at least two transistors;

wherein the controller is configured to ~~select~~ perform one of a plurality of different programmable responses ~~based on the filtered sensor~~ in dependence on the signals indicative of potential failure conditions; ~~and~~

wherein one or more of the plurality of different programmable responses causes the system to operate in a modified manner without causing ~~does not cause~~ a turning off of any of the transistors of the amplifier output stage; and

wherein in dependence on a said signal indicative of a potential failure condition being output by a said accumulator, the system operates in a modified manner for at least a period of time during which the potential failure condition persists until the corresponding count of the accumulator is sufficiently decremented such that the count no longer exceeds the corresponding accumulator threshold.

2. (Currently Amended) The system of claim 1,

wherein the one or more sensors comprise at least one current sensor and at least one temperature sensor;

wherein the controller is configured to detect over-current conditions in the output stage ~~based on filtered sensor signals from~~ in dependence on the at least one output of the at least one accumulator associated with the at least one current sensor;

wherein the controller is configured to detect over-temperature conditions in the output stage ~~based on filtered sensor signals from~~ in dependence on the at least one output of the at least one accumulator associated with the at least one temperature sensor; and

wherein the programmable response ~~to the filtered sensor signals~~ is selected from a group of responses that includes compressing at least a portion of the audio signals without causing a turning off of a transistor of the output stage.

3. (Original) The system of claim 1, wherein the controller comprises a pulse width modulation (PWM) controller and the output stage comprises a PWM output stage.

4. (Original) The system of claim 3, wherein the one or more sensors comprise at least one current sensor, wherein the controller is configured to detect shoot-through current and to responsively adjust delays between a high-side signal and a low-side signal to minimize the shoot-through current.

5. (Canceled)

6. (Currently Amended) The system of claim [[5]] 1, wherein the one or more sensors comprise at least one current sensor.

7. (Currently Amended) The system of claim [[5]] 1, wherein the one or more sensors comprise at east one temperature sensor.

8. (Canceled)

9. (Canceled)

10. (Currently Amended) The system of claim [[9]] 1, wherein the comparator thresholds and accumulator thresholds are ~~is~~ programmable.

11. (Canceled)

12. (Currently Amended) The system of claim [[11]] 1, wherein the ~~multiple~~ plurality of sensors comprise at least one current sensor and at least one temperature sensor, and wherein the controller is configured to detect over-current and over-temperature conditions in the output stage.

13. (Currently Amended) The system of claim 1, wherein at least one of the plurality of programmable responses ~~based on the filtered sensor signals~~ comprises compressing at least a portion of the audio signals.

14. (Currently Amended) A method for use with a system including an audio amplifier output state, the method comprising:

driving the audio amplifier output stage in dependence on received audio signals;

using a sensor to sense ~~sensing~~ a condition of ~~an~~ the audio amplifier output stage,

wherein the amplifier output stage includes at least two transistors;

~~providing a sensor output signal corresponding to the sensed condition;~~

~~low-pass filtering the sensor output signal to produce a filtered sensor signal;~~

~~providing the filtered sensor signal to an audio amplifier controller; and~~

comparing an output of the sensor to a first threshold to produce a binary protection signal indicative of whether the first threshold is exceeded;

incrementing a count when the binary protection signal is a first state;

decrementing the count when the binary protection signal is a second state;

producing a signal indicative of a potential failure condition when the count exceeds a second threshold;

performing ~~selecting~~ one of a plurality of different programmable responses ~~based~~ in dependence on the ~~filtered sensor~~ signal indicative of the potential failure condition, wherein ~~one or more of the plurality of different programmable responses does not cause~~ the performed response causes the system to operate in a modified manner without causing a turning off of any of the transistors of the amplifier output stage; and

continuing to operate the system in a modified manner for at least a period of time during which the potential failure condition persists until the count is sufficiently decremented such that the count no longer exceeds the second threshold.

15. (Original) The method of claim 14, wherein the audio amplifier output stage comprises a pulse width modulated (PWM) output stage and wherein sensing the condition of the output stage comprises detecting a current through a transistor of the output stage.

16. (Original) The method of claim 15, further comprising detecting a shoot-through condition in the output stage.

17. (Original) The method of claim 16, further comprising adjusting relative delays between a high-side signal and a low-side signal input to the output stage to minimize shoot-through.

18. (Original) The method of claim 14, wherein the audio amplifier output stage comprises a pulse width modulated (PWM) output stage and wherein sensing the condition of the output stage comprises detecting a temperature of a transistor of the output stage.

19. (Original) The method of claim 14, wherein the audio amplifier output stage comprises a pulse width modulated (PWM) output stage and wherein sensing the condition of the output stage comprises detecting a temperature of a heat sink of the output stage.

20. (Canceled)

21. (Canceled)

22. (Currently Amended) The method of claim [[21]] 14, further comprising modifying the ~~threshold value associated with the accumulator~~ second threshold.

23. (Canceled)

24. (Currently Amended) The method of claim 14, wherein ~~providing~~ the performed programmable response ~~based on the filtered sensor signal~~ comprises compressing at least a portion of the audio signals.

25. (Currently Amended) The system of claim 1, wherein:

the controller comprises a pulse width modulation (PWM) controller and the output stage comprises a PWM output stage;

~~the system further comprises one or more comparators coupled to receive analog sensor signals from corresponding ones of the sensors and configured to generate binary sensor signal which are provided to corresponding ones of the low-pass filters;~~

~~each low-pass filter comprises an accumulator configured to not assert the filtered sensor signal when a value in the accumulator is below a programmable threshold and to assert the filtered sensor signal when the value in the accumulator is above the threshold~~.

26. (Previously presented) The system of claim 2, wherein the at least one temperature sensor is selected from a group consisting of:

a thermal diode;

a temperature sensitive resistor; and

a temperature sensing integrated circuit.

27. (Currently Amended) The system of claim 2, where during the compressing at least a portion of the audio signals:

a portion of the audio signals that is below a threshold value is amplified by a first level; and

a portion of the audio signals that is above the threshold is amplified by a second level that is below the first level but is greater than multiplying by zero.

28. (Currently Amended) The system of claim 13, where during the compressing at least a portion of the audio signals:

a portion of the audio signals that is below a threshold value is amplified by a first level; and

a portion of the audio signals that is above the threshold is amplified by a second level that is below the first level but is greater than multiplying by zero.